

What Is Claimed Is:

1. Apparatus for reconfiguring tissue, said apparatus comprising:

5 a shaft having a distal end and a proximal end;  
at least one effector mechanism movably mounted to said distal end of said shaft, each said effector mechanism comprising at least one gripping element for gripping tissue to that effector mechanism, said at least one effector  
10 mechanism being configured to capture the gripped tissue against said shaft;

at least one actuating mechanism mounted to said proximal end of said shaft; and

15 at least one connection mechanism connecting said at least one actuating mechanism to said at least one effector mechanism, whereby a user may utilize said at least one actuating mechanism to actuate said at least one effector mechanism so as to reconfigure tissue.

20 2. Apparatus according to claim 1 wherein said shaft is flexible.

3. Apparatus according to claim 1 wherein said shaft  
has a lumen extending therethrough.

4. Apparatus according to claim 3 wherein said lumen  
is sized to receive another instrument therein.

5. Apparatus according to claim 4 wherein said  
instrument comprises a working tool.

6. Apparatus according to claim 5 wherein said  
working tool comprises a stapler.

7. Apparatus according to claim 4 wherein said  
instrument comprises a scope.

8. Apparatus according to claim 1 wherein said  
apparatus comprises two effector mechanisms.

9. Apparatus according to claim 8 wherein said two  
effector mechanisms are pivotally mounted to said shaft.

10. Apparatus according to claim 9 wherein said distal  
end of said shaft comprises a longitudinal axis, and further  
wherein said two effector mechanisms are pivotally mounted  
to said shaft along a pivot axis extending parallel to said  
longitudinal axis of said distal end of said shaft.

11. Apparatus according to claim 10 wherein said two  
effector mechanisms are configured to move between (i) a  
closed position wherein said two effector mechanisms fold  
concentrically about said distal end of said shaft, and (ii)  
an open position wherein said two effector mechanisms rise  
like wings over said shaft.

12. Apparatus according to claim 11 wherein said at  
least one gripping element comprises a suction pod for  
drawing tissue against the effector mechanism and for  
maintaining the tissue in such engagement while suction is  
maintained.

13. Apparatus according to claim 12 wherein said  
distal end of said shaft comprises at least one gripping  
element for drawing tissue against said shaft and for

maintaining the tissue in such engagement while suction is maintained.

14. Apparatus according to claim 13 wherein said  
5 distal end of said shaft comprises a plurality of gripping  
elements, with said gripping elements being positioned about  
the circumference of said shaft in the region covered by  
said effector mechanisms when said effector mechanisms are  
in said closed position.

10  
15. Apparatus according to claim 14 wherein said  
gripping elements comprise suction pods.

16. Apparatus according to claim 15 wherein said  
15 distal end of said shaft comprises at least one fastening  
mechanism for securing tissue to tissue.

17. Apparatus according to claim 16 wherein said at  
least one fastening mechanism is adapted to extend radially  
20 outward from said distal end of said shaft.

18. Apparatus according to claim 17 wherein said mechanism comprises a staple.

19. Apparatus according to claim 1 wherein said at least one connection mechanism comprises a cable.

20. Apparatus according to claim 1 wherein said apparatus comprises one effector mechanism.

21. Apparatus according to claim 20 wherein said effector mechanism is pivotally mounted to said shaft.

22. Apparatus according to claim 21 wherein said distal end of said shaft comprises a longitudinal axis, and further wherein said effector mechanism is pivotally mounted to said shaft along a pivot axis extending transverse to said longitudinal axis of said distal end of said shaft.

23. Apparatus according to claim 22 wherein said effector mechanism is configured to move between (i) a closed position wherein said effector mechanism folds concentrically about said distal end of said shaft, and (ii)

an open position wherein said effector mechanism rises over said shaft.

24. Apparatus according to claim 23 wherein said at  
5 least one gripping element comprises a suction pod for drawing tissue against the effector mechanism and for maintaining the tissue in such engagement while suction is maintained.

10 25. Apparatus according to claim 24 wherein said distal end of said shaft comprises at least one gripping element for drawing tissue against said shaft and for maintaining the tissue in such engagement while suction is maintained.

15 26. Apparatus according to claim 25 wherein said distal end of said shaft comprises a plurality of gripping elements, with said gripping elements being positioned about the circumference of said shaft in the region covered by  
20 said effector mechanism when said effector mechanism is in said closed position.

27. Apparatus according to claim 26 wherein said gripping elements comprise suction pods.

28. Apparatus according to claim 27 wherein said  
5 apparatus further comprises a septum extending between said shaft and said effector mechanism.

29. Apparatus according to claim 28 wherein said  
10 distal end of said shaft comprises at least one fastening mechanism for securing tissue to tissue.

30. Apparatus according to claim 29 wherein said at  
least one fastening mechanism is adapted to extend radially  
outward from said distal end of said shaft.

15 31. Apparatus according to claim 30 wherein said fastening mechanism comprises a staple.

32. Apparatus according to claim 1 wherein said  
20 apparatus comprises a plurality of effector mechanisms.

33. Apparatus according to claim 32 wherein said plurality of effector mechanisms extend out of the distal end of said shaft.

5           34. Apparatus according to claim 33 wherein said distal end of said shaft comprises a longitudinal axis, and further wherein said plurality of effector mechanisms extend parallel to said longitudinal axis of said distal end of said shaft.

10           35. Apparatus according to claim 34 wherein said plurality of effector mechanisms are configured to move between (i) a first position wherein said plurality of effector mechanisms collectively form a tubular  
15 configuration, and (ii) a second position wherein said plurality of effector mechanisms collectively form a non-tubular configuration.

20           36. Apparatus according to claim 35 wherein said at least one gripping element comprises a suction pod for drawing tissue against the effector mechanism and for



maintaining the tissue in such engagement while suction is maintained.

36. Apparatus according to claim 35 wherein said  
5 plurality of gripping elements comprise at least one  
fastening mechanism for securing tissue.

37. Apparatus for reconfiguring tissue, said apparatus  
comprising:

10 a shaft having a distal end and a proximal end, wherein  
said distal end of said shaft comprises at least one  
gripping element for drawing tissue against said shaft and  
for selectively maintaining the tissue in such engagement;

two effector mechanisms movably mounted to said distal  
15 end of said shaft, each said effector mechanism comprising  
at least one gripping element for gripping tissue to that  
effector mechanism, said two effector mechanisms being  
configured to capture the gripped tissue against said shaft,  
wherein said distal end of said shaft comprises a  
20 longitudinal axis, wherein said two effector mechanisms are  
pivotally mounted to said shaft along a pivot axis extending  
parallel to said longitudinal axis of said distal end of

said shaft, wherein said two effector mechanisms are configured to move between (i) a closed position wherein said two effector mechanisms fold concentrically about said distal end of said shaft, and (ii) an open position wherein  
5 said two effector mechanisms rise like wings over said shaft, and wherein said at least one gripping element comprises a suction pod for drawing tissue against the effector mechanism and for maintaining the tissue in such engagement while suction is maintained;

10 at least one actuating mechanism mounted to said proximal end of said shaft; and

at least one connection mechanism connecting said at least one actuating mechanism to said two effector mechanisms, whereby a user may utilize said at least one  
15 actuating mechanism to actuate said two effector mechanisms so as to reconfigure tissue.

38. Apparatus for reconfiguring tissue, said apparatus comprising:

20 a shaft having a distal end and a proximal end, wherein said distal end of said shaft comprises at least one gripping element for drawing tissue against said shaft and

for maintaining the tissue in such engagement while suction is maintained;

an effector mechanism movably mounted to said distal end of said shaft, said effector mechanism comprising at least one gripping element for gripping tissue to that effector mechanism, said effector mechanism being configured to capture the gripped tissue against said shaft, wherein said distal end of said shaft comprises a longitudinal axis, wherein said effector mechanism is pivotally mounted to said shaft along a pivot axis extending transverse to said longitudinal axis of said distal end of said shaft, wherein said effector mechanism is configured to move between (i) a closed position wherein said effector mechanism folds concentrically about said distal end of said shaft, and (ii) an open position wherein said effector mechanism rises over said shaft, and wherein said at least one gripping element comprises a suction pod for drawing tissue against the effector mechanism and for maintaining tissue in such engagement while suction is maintained;

at least one actuating mechanism mounted to said proximal end of said shaft; and

at least one connection mechanism connecting said at  
least one actuating mechanism to said effector mechanism,  
whereby a user may utilize said at least one actuating  
mechanism to actuate said effector mechanism so as to  
reconfigure tissue.

39. Apparatus for reconfiguring tissue, said apparatus  
comprising:

a shaft having a distal end and a proximal end;

a plurality of effector mechanisms mounted to said  
distal end of said shaft, each said effector mechanism  
comprising at least one gripping element for gripping tissue  
to that effector mechanism, said plurality of effector  
mechanisms being configured to capture the gripped tissue  
against said shaft, wherein said distal end of said shaft  
comprises a longitudinal axis, wherein said plurality of  
effector mechanisms extend parallel to said longitudinal  
axis of said distal end of said shaft, wherein said  
plurality of effector mechanisms are configured to move  
between (i) a first position wherein said plurality of  
effector mechanisms collectively form a tubular  
configuration, and (ii) a second position wherein said

plurality of effector mechanisms collectively form a non-tubular configuration, and wherein said at least one gripping element comprises a suction pod for drawing tissue against the effector mechanism and for maintaining the tissue in such engagement while suction is maintained;

5           at least one actuating mechanism mounted to said proximal end of said shaft; and

10           at least one connection mechanism connecting said at least one actuating mechanism to said plurality of effector mechanisms, whereby a user may utilize said at least one actuating mechanism to actuate said plurality of effector mechanisms so as to reconfigure tissue.

15           40. A method for reconfiguring tissue, said method comprising:

          providing apparatus comprising:

20           a shaft having a distal end and a proximal end, wherein said distal end of said shaft comprises at least one gripping element for drawing tissue against said shaft and for selectively maintaining the tissue in such engagement;

          two effector mechanisms movably mounted to said distal end of said shaft, each said effector mechanism

comprising at least one gripping element for gripping tissue  
to that effector mechanism, said two effector mechanisms  
being configured to capture the gripped tissue against said  
shaft, wherein said distal end of said shaft comprises a  
5 longitudinal axis, wherein said two effector mechanisms are  
pivotally mounted to said shaft along a pivot axis extending  
parallel to said longitudinal axis of said distal end of  
said shaft, wherein said two effector mechanisms are  
configured to move between (i) a closed position wherein  
10 said two effector mechanisms fold concentrically about said  
distal end of said shaft, and (ii) an open position wherein  
said two effector mechanisms rise like wings over said  
shaft, and wherein said at least one gripping element  
comprises a suction pod for drawing tissue against the  
15 effector mechanism and for maintaining the tissue in such  
engagement while suction is maintained;

at least one actuating mechanism mounted to said  
proximal end of said shaft; and

at least one connection mechanism connecting said  
20 at least one actuating mechanism to said two effector  
mechanisms, whereby a user may utilize said at least one

actuating mechanism to actuate said two effector mechanisms  
so as to reconfigure tissue;

positioning said two effector mechanisms in said closed  
position;

5       advancing said apparatus so that said distal end of  
said shaft is positioned adjacent tissue to be reconfigured;

positioning said two effector mechanisms in said open  
position;

10       gripping tissue against said distal end of said shaft  
and against said two effector mechanisms; and

positioning said two effector mechanisms in said closed  
position so as to reconfigure the gripped tissue and capture  
that tissue against said shaft.

15       41. A method according to claim 40 wherein said method  
comprises the additional step of securing the tissue in its  
reconfigured condition.

20       42. A method according to claim 40 wherein said tissue  
comprises stomach tissue reconfigured into a neoesophagus.

43. A method according to claim 42 wherein said tissue comprises stomach tissue reconfigured into a neoesophagus wrapped by stomach tissue.

5           44. A method for reconfiguring tissue, said method comprising:

          providing apparatus comprising:

          a shaft having a distal end and a proximal end, wherein said distal end of said shaft comprises at least one gripping element for drawing tissue against said shaft and for maintaining the tissue in such engagement while suction is maintained;

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          an effector mechanism movably mounted to said distal end of said shaft, said effector mechanism comprising at least one gripping element for gripping tissue to that effector mechanism, said effector mechanism being configured to capture the gripped tissue against said shaft, wherein said distal end of said shaft comprises a longitudinal axis, wherein said effector mechanism is pivotally mounted to said shaft along a pivot axis extending transverse to said longitudinal axis of said distal end of said shaft, wherein said effector mechanism is configured to move between (i) a

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closed position wherein said effector mechanism folds  
concentrically about said distal end of said shaft, and (ii)  
an open position wherein said effector mechanism rises over  
said shaft, and wherein said at least one gripping element  
5 comprises a suction pod for drawing tissue against the  
effector mechanism and for maintaining tissue in such  
engagement while suction is maintained;

at least one actuating mechanism mounted to said  
proximal end of said shaft; and

10 at least one connection mechanism connecting said  
at least one actuating mechanism to said effector mechanism,  
whereby a user may utilize said at least one actuating  
mechanism to actuate said effector mechanism so as to  
reconfigure tissue;

15 positioning said effector mechanism in said closed  
position;

advancing said apparatus so that said distal end of  
said shaft is positioned adjacent tissue to be reconfigured;

positioning said effector mechanism in said open  
20 position;

gripping tissue against said distal end of said shaft  
and against said effector mechanism; and

positioning said effector mechanism in said closed position so as to reconfigure the gripped tissue and capture that tissue against said shaft.

5           45. A method according to claim 44 wherein said method comprises the additional step of securing the tissue in its reconfigured condition.

10           46. A method according to claim 42 wherein said tissue comprises stomach tissue reconfigured into a neoesophagus.

          47. A method according to claim 46 wherein said tissue comprises stomach tissue reconfigured into a neoesophagus wrapped by stomach tissue.

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          48. A method for reconfiguring tissue, said method comprising:

          providing apparatus comprising:

          a shaft having a distal end and a proximal end;

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          a plurality of effector mechanisms mounted to said distal end of said shaft, each said effector mechanism comprising at least one gripping element for gripping tissue

to that effector mechanism, said plurality of effector mechanisms being configured to capture the gripped tissue against said shaft, wherein said distal end of said shaft comprises a longitudinal axis, wherein said plurality of effector mechanisms extend parallel to said longitudinal axis of said distal end of said shaft, wherein said plurality of effector mechanisms are configured to move between (i) a first position wherein said plurality of effector mechanisms collectively form a tubular configuration, and (ii) a second position wherein said plurality of effector mechanisms collectively form a non-tubular configuration, and wherein said at least one gripping element comprises a suction pod for drawing tissue against the effector mechanism and for maintaining the tissue in such engagement while suction is maintained;

at least one actuating mechanism mounted to said proximal end of said shaft; and

at least one connection mechanism connecting said at least one actuating mechanism to said plurality of effector mechanisms, whereby a user may utilize said at least one actuating mechanism to actuate said plurality of effector mechanisms so as to reconfigure tissue;

positioning said effector mechanisms in said first position;

advancing said apparatus so that said distal end of said shaft is positioned adjacent tissue to be reconfigured;

5       gripping tissue against said distal end of said shaft and against said effector mechanisms; and

positioning said effector mechanisms in said second position so as to reconfigure the gripped tissue and capture that tissue against said shaft.

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49. A method according to claim 48 wherein said method comprises the additional step of securing the tissue in its reconfigured condition.

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50. A method according to claim 48 wherein said tissue comprises stomach tissue reconfigured into a neoesophagus.

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51. A method according to claim 50 wherein said tissue comprises stomach tissue reconfigured into a neoesophagus wrapped by stomach tissue.

52. A method for treating GERD, comprising:

creating a neoesophagus that extends into the abdomen.

53. A method according to claim 52 wherein said method further comprises the step of wrapping the stomach around the neoesophagus.

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